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Large Systemic Banks and Fractional Reserve Banking, Intractable Dilemmas in Search of Effective Solutions

Emilios Avgouleas^{*}

I Introduction

Banks have been a ubiquitous feature of economic life since at least the eighteenth century¹ and well before neoclassical economics incorporated capital in its growth models, chiefly through J. M. Keynes's writings. In modern times the concept of availability of capital has been updated, or even stretched, to be closely associated with the concept of financial sector development and attendant levels of access to (external) finance.² Yet, while the value of an enlarged financial

^{*} Chair in International Banking Law & Finance, Head of Commercial Law, University of Edinburgh. I owe a debt of gratitude for conversations I had in the context of drafting this paper to Charles Goodhart, all errors remain mine.

¹ The best example is the Bank of Scotland, part of the Lloyds Group today, which was established in Edinburgh in 1695 with the purpose of conducting commercial banking operations. For the history of the Bank of Scotland that set up as a rival to the Bank of England albeit with different focus as the former was established to manage government debt see http://en.wikipedia.org/wiki/Bank_of_Scotland.

² For a collection of the most important research substantiating the role of finance in economic growth see A. Demirgüç-Kunt and R. Levine (eds, *Financial Structure and Economic Growth: A Cross-Country Comparison of Banks, Markets, and Development* (MIT Press, 2003). It seems that the findings of the cited studies in the MIT volume were not as instructive as those researchers made us believe and in their own subsequent writings they have themselves admitted that the indicators they used were very crude

sector remains disputed, given its perennial fragility due to its preponderance to generate booms and bursts,³ the economic and social utility of a savings-based economy is not. This is not just the experience of older societies but even more so it is a widespread and largely unchallenged – probably because it is true – assumption of modern societies.

For example, one of the least mentioned utilities of savings-based economies is that banking (and capital markets) operating in a competitive environment and outside government interventions on their lending decisions and other capital allocation decisions can facilitate individuals' economic and social mobility.⁴ Affording individuals or small enterprises access to credit and savings services that might not have been available otherwise, whether by means of mainstream banking, or community banking, or even microfinance schemes, can help mobilize individuals' or communities' creative talents. Moreover granting to the poor access to saving accounts facilitates their forward planning and to some extent alleviates any future short-term income shocks that may experience (e.g., unemployment), making them more proactive and

and it is still unclear which of the key properties of the financial system provide the best measure of its development and contribution to economic growth. See for a summary of the findings and conclusions of contemporary financial development research see M. Cihak, A. Demircuc-Kunt et al., “Measuring Financial Development” VOX column, 25 April 2013, available at www.voxeu.org/article/measuring-financial-development.

³ On the value of financial stability in fostering growth see D. Arner, *Financial Stability, Economic Growth, and the Role of Law* (CUP, 2007). See also T. Beck, “The Role of Finance Economic Development: Benefits, Risks, and Politics” in D. C. Mueller, *The Oxford Handbook of Capitalism* (OUP, 2012), online, chapter 6.

⁴ See R. Rajan, L. Zingales, *Saving Capitalism from the Capitalists: Unleashing the Power of Financial Markets to Create Wealth and Spread Opportunity* (Princeton, 2004).

entrepreneurial.⁵ These benefits accrue to societies in addition to those flowing from the ability of the financial system to finance long-term development or infrastructure projects with strong social utility.

Arguably, financial sector development is not a goal in itself it is rather a means to an end. Yet in the past thirty years financial markets have developed into a thick and complex web of claims and counterclaims, tradable assets, and risks. The transformation that banks have undergone in the past three decades has made the struggle to keep them safe, ever harder, and more challenging.

Whether operating under the principle of limited or unlimited liability, on a purely domestic or international basis, as mainstream lenders or as part of complex organizations, within a free banking environment or under the protective “wings” of the lender of last resort, banks have never been straightforward creatures. They normally operate on the basis of a fractional reserve system, trading on the basis of a large multiple over shareholders’ equity and only keeping small reserves against their liabilities, that is, money entrusted (lent) to them by depositors and bondholders. Fractional reserve banking presupposes a strong amount of trust in the safety of individual banks and the stability of the entire financial system. But such confidence can easily evaporate either because of trouble within a bank or developments in other parts of the

⁵ For analysis and extensive relevant bibliography see E. Avgouleas, “International Financial Regulation, Access to Finance, Systemic Stability, and Development”, (2008) *LAWASIA Journal* 62–76.

financial system or even outside the financial system in the wider national and international economy.⁶

The pace of bank business transformation has been unprecedented in the past three decades. This is a period that roughly coincides with global trade liberalisation, and effective and rapid communications, normally defined as the era of globalisation. This era in global banking has two distinct phases, the period between 1990 and 2008 and the period post-2008. During the first phase the biggest banks gradually moved to a purely multifunctional–universal bank model and global geographic coverage of operations, as banks became increasingly transnational.

The second phase is exclusively defined by a tidal wave of regulatory reforms at the national, regional, and global level. One of the most important consequences of the Global Financial Crisis (GFC) was that, due to the threat of systemic disruption, it became impossible to tolerate the failure of even medium-sized investment banks, like Lehman Brothers. National treasuries had to put together expensive bail-out plans in order to rescue severely undercapitalized banks in crisis, from going bankrupt and thus reinforcing a vicious chain effect of panic, contagion, and instability. Some of these bailouts proved very expensive, though the final cost was not the same in all jurisdictions. Ensuing reforms have aimed at remedying the perceived causes of the GFC and prevent the reoccurrence of a crisis of such magnitude.

The notion of market discipline aiding financial stability in the financial sector is sometimes stretched to a breaking point for two all-pervasive reasons. First, shareholders normally care little for financial stability threats and much more about their returns on equity

⁶ The risk of a confidence shock spreading throughout the financial system (contagion) is in fact the fundamental rationale of banking regulation. See C. Goodhart, et al. *Financial Regulation: Why, How and Where Now?* (Routledge, 1998).

(ROE). Secondly, most modern financial institutions are too complex to be properly subjected to the rigours of market discipline. Even when shareholders and creditors have the right incentives to be effective monitors, balance sheet complexity will remain a challenging obstacle.⁷ Moreover, any reliance on market discipline acting as a restraint to the operations of large and/or interconnected banks entirely evaporated, reinforcing moral hazard (normally called too-big-to-fail (TBTF)).

This chapter intends to provide a balanced, all-encompassing, and in-depth discussion of the social utility of big banks in a fractional reserve banking system in the post-2008 context utilizing a very wide array of empirical and theoretical works. It will, thus, discuss the dilemmas surrounding the famed demolition of the TBTF bank in the postreform era. To this effect, the chapter will explain that while well calibrated structural reforms and special resolution regimes can certainly help to alleviate the TBTF problem in the banking sector, they will not eliminate it. At the same time, implementation of the suggested alternative of full-reserve, limited-purpose, or narrow-banking models would, practice, create more problems than it would solve.

Arguably, until the present model of fractional reserve banking is radically overhauled, mostly through effective regulatory systems and structural reforms that refocus global finance on long-term growth objectives, societies may have to provide a form of fiscal backstop to big (mostly ring-fenced or separated) commercial banks. This may be the social cost that has to be paid for the benefit of fractional reserve banking. It ought not to be confused with the abuses surrounding the TBTF subsidy in the pre-2008 era.

⁷ For analytical discussion see E. Avgouleas and J. Cullen, “Market Discipline and EU Corporate Governance Reform in the Banking Sector: Merits, Fallacies, and Cognitive Boundaries”, 41 *Journal of Law and Society* 28–50 (2014).

This chapter is divided in five sections. The first section is the present introduction. The second section will discuss the historical emergence of the multifunctional banks, also called megabanks, as the dominant model of bank organisation. The third section will provide an in depth evaluation of the costs and benefits of large multifunctional (TBTF) banks with special reference the economics of bank organisation and the TBTF subsidy utilising an extensive range of empirical and theoretical studies. To this effect, the section will provide a balanced discussion of the risks and challenges posed by the existence of large multifunctional banks, which, in the absence of an effective structural regulation and a failure proof resolution framework is bound to be TBTF. The fourth section provides a critical evaluation of the remedial regulatory and policy reforms that have already been implemented or are under way to deal with the TBTF problem. It will also discuss the Kotlikoff and Kay proposals for a full reserve (narrow – limited purpose) banking system. Section V provides the conclusion.

III Emergence of the Megabank Model

A Introductory Remarks

Outside Continental Europe, chiefly Switzerland and Germany, the business model of financial conglomeration that is best manifested by megabanks emerged as late as the 1990s as a result of three factors. First, financial innovation both eroded the traditional boundaries between commercial and investment banking, as a host of derivatives products and financing techniques could be used by both kinds of institutions and created a strong movement towards disintermediation. The latter meant that profit margins became ever thinner for traditional lenders that did not normally engage in capital market activities. At the same time, investment

banks needed an ever larger capital and funding base in order to compete successfully under the new conditions. That larger capital and funding base could be ensured through the merger of an investment bank with a lending institution. Such mergers were seen at the time as the apex of capital optimization in the banking sector; investment banking would bring higher profit margins and commercial banking the wide, cheap, and safe funding basis ensured through acceptance of retail and commercial deposits.

The second reason was the global, and possibly misguided, trend toward financial liberalization, which lied at the heart of economic globalisation, together with trade liberalization. International financial liberalization was achieved through the abolition of national controls over cross-border capital flows and of restrictions over foreign entry to domestic financial services markets. Globalization, in turn, presented big banks and their public regulators with two important challenges: first, how to build big institutions that could compete successfully at the global stage, and, second, by which means this global industry could be regulated? The latter was achieved through the nearly universal endorsement of the prudential regulation standards⁸ issued in the last two decades by the Basel Committee on Banking Supervision (BCBS).

The third reason was deregulation of the financial services industry in the western world. First, in the United Kingdom, where, unlike the United States, segregation between commercial and investment banking institutions was informal, so called “big bang” of 27 October 1986

⁸ Professor J. J. Norton was the first legal scholar who identified and seriously examined the emerging global consensus for banking regulation. Norton’s work set the course for many subsequent studies. See J. J. Norton, *Devising International Bank Supervisory Standards* (The Hague: Martinus-Nijhoff, 1995), and Norton (ed.), *Bank Regulation and Supervision in the 1990s* (Kluwer Law, 1991); Norton and I. Fletcher, *International Banking Regulation and Supervision: Change and Transformation in the 1990s* (Kluwer Law International, 1994).

meant the disappearance of traditional stock jobbers.⁹ This created a chain reaction, which gradually led to the acquisition of most of the traditional discount houses and merchant banks, either by foreign competitors or large UK commercial banks. The latter meant a huge shift of business culture for the big UK banks, which eventually culminated to the disastrous acquisitions and business policies followed by the Royal Bank of Scotland and the Halifax Bank of Scotland two decades later.

Repealing Glass-Steagall

The United States had in place the last relics of depression era legislation, so called Glass-Steagall Act,¹⁰ until 1999. The core sections of the Banking Act of 1933, which referred to banks' securities operations and were defined as the Glass-Steagall Act, were sections 16, 20, 21, and 32. Section 16, as amended by the Banking Act of 1935, generally prohibited Federal Reserve member banks from purchasing securities for their own account. Sections 16 and 21 also forbade deposit-taking institutions from engaging in the business of “issuing, underwriting, selling, or distributing, at wholesale or retail, or through syndicate participation, stock, bonds, debentures, notes or other securities”, except holdings of U.S. treasury bills and other public sector debt obligations. The Act (section 20) also prohibited member banks from affiliating with a company “engaged principally” in the “issue, flotation, underwriting, public sale, or distribution at wholesale or retail or through syndicate participation of stocks, bonds, debentures, notes, or other

⁹ On the disappearance of the LSE's stock jobbers and their business culture see Bernard Attard, “Making a Market, The Jobbers of London Stock Exchange, 1800–1986”, (2000) 7 *Financial History Review* 5.

¹⁰ Banking Act of 1933, 48 Stat. 162, codified in several sections of the United States Code, now repealed.

securities”. In fact, cognizant of the scope for conflicts of interest section 32 prohibited a member bank from having interlocking directorships or close officer or employee relationships with a firm “principally engaged” in securities underwriting and distribution, even if there was no common ownership or corporate affiliation between the commercial bank and the investment company.

By the time of its formal repeal in 1999,¹¹ Glass-Steagall type restrictions had been seriously eroded,¹² especially as regards the ability of commercial banks to acquire securities affiliates,¹³ and the trend towards megamergers between financial services institutions had already set in. Considerable effort was put into debunking the historical underpinnings of the Glass-Steagall Act and to showing that the risks and abuses were not as great as its proponents claimed.¹⁴ Yet, the pressure to repeal Glass Steagall did not originate from investment banks but it was more commercial banks’ desire to acquire a slice in lucrative securities underwritings to boost their income.

¹¹ Gramm-Leach-Bliley Financial Services Modernization Act, Pub. L. No. 106–102, 113 Stat. 1338 (1999). For today’s reader that has the benefit of hindsight it seems inexplicable that so few U.S. senators opposed at the time the repeal of Glass-Steagall Act. See “Glass-Steagall Act: The Senators And Economists Who Got It Right”, *Huffington Post*, 11 May 2009, available at www.huffingtonpost.com/2009/05/11/glass-steagall-act-the-se_n_201557.html

¹² Bank Holding Company Act of 1956, Pub. L. No. 511, 70 Stat. 133.

¹³ For example, in June 1988 the U.S. Supreme Court (by denying certiorari) upheld a lower court’s ruling accepting the Federal Reserve Board’s April 1987 approval for member banks to affiliate with companies underwriting commercial paper, municipal revenue bonds, and securities backed by mortgages and consumer debts, as long as the affiliate does not principally engage in those activities.

¹⁴ For example, G. Benston, *The Separation of Commercial and Investment Banking* (New York, OUP, 1990).

But since mid-1990s the motives for the repeal of the act had become even more sinister and mostly referred to serious gains in terms of stock prices that accrued to megamergers,¹⁵ especially those hailed by “learned” market analyst as augmenting income in the long-term and creating massive economies of scale especially on the sell side.¹⁶ This trend was culminated in the merger of Citicorp (a banking company) with Travellers, a financial conglomerate with several insurance subsidiaries and the securities firm (Salomon Smith Barney) to produce Citigroup. This merger preceded and probably “coerced” the repeal of Glass-Steagall Act.¹⁷ It was followed by the subsequent merger of JP Morgan with Chase Manhattan in 2000. These mergers made megabanks a menacing reality both to competitors and consumers and the financial system.¹⁸

¹⁵ For an overview of this phase in the history of American banking see L. Baxter “Betting Big: Value, Caution and Accountability in an Era of Large Banks and Complex Finance”, 31 *Review of Banking and Financial Law* 784–800 (2011–12), pp. 765–877.

¹⁶ For the timeline of long efforts to repeal the Glass-Steagall Act and an uncorroborated estimate of the cost of lobbying for the final repeal of the Act in 1999 see Editorial, “The Long Demise of Glass-Stegall, A chronology tracing the life of the Glass-Steagall Act, from its passage in 1933 to its death throes in the 1990s, and how Citigroup’s Sandy Weill dealt the coup de grâce”,. Available at www.pbs.org/wgbh/pages/frontline/shows/wallstreet/weill/demise.html.

¹⁷ See for the influence of the Citigroup merger on the repeal of Glass-Stegall Act and the enactment of the Gramm-Leach-Bliley Act. See A. E. Wilmarth, “The Dark Side of Universal Banking: Financial Conglomerates and the Origins of the Subprime Financial Crisis”, 41 *Connecticut Law Review* 963 (2009), pp.972–975.

¹⁸ The figures that this consolidation represented in the United States are staggering: “More than 5,400 mergers took place in the U.S. banking industry from 1990 to 2005, involving more than \$5.0 trillion in banking assets. In seventy-four of those mergers, both the acquiring bank and the target bank had assets exceeding \$10 billion. As a consequence of the bank merger wave, the share of U.S. banking assets held

C The EU “Levels” the Playing Field

The same drive toward deregulation, by means, in this case, of harmonization legislation with the explicit intent of levelling the playing field between continental European universal banking and the informally segregated model operated in Britain and in some other EU member states, meant that EU legislation actively promoted the universal bank model.¹⁹ Thus, it fostered the creation of several megabanks in the United Kingdom and rest of Europe, though of a size much smaller than that of their U.S. counterparts.

Liberalization and the dismantling of barriers between commercial and investment banking also meant a large number of cross-border mergers and acquisitions,²⁰ creating large complex financial conglomerates with very strong international business, asset, and deposit base. A major EU measure, ostensibly designed to counteract market risks associated with securities and other activities, was the Capital Adequacy Directive (the CAD).²¹ In fact the CAD had as

by the ten largest banks more than doubled, rising from twenty-five percent in 1990 to fifty-five percent in 2005. The three largest U.S. banks – Citigroup, Bank of America (BoFA) and JP Morgan Chase (Chase) – expanded rapidly after 1990, and each bank held more than \$1.5 trillion of assets at the end of 2007. Wachovia, the fourth largest U.S. bank, also grew rapidly, and its assets exceeded \$780 billion at the end of 2007. Ibid. pp. 975–976. (notes omitted).

¹⁹ The chief example of such EU legislation is the Second Banking Directive 89/646/EEC [1989] OJ L 386/1, replaced by Directive 2006/48/EC [2006] OJ L 177/1 relating to the taking up and pursuit of the business of credit institutions. The Second Banking Directive allowed deposit-taking European Banks to also engage in the kind of investment market activities that were usually reserved, at least outside of Germany, for securities firms and non-deposit taking investment banks.

²⁰ For the full discussion see R. Cranston, *Principles of Banking Law* (OUP, 2nd ed., 2002), chapter 3.

²¹ Directive on the capital adequacy of investments firms and credit institutions, 93/6/EEC [1993] OJ L141/1. See M. Hall, “The Measurement and Assessment of Market Risk: a Comparison of the European

much to do with competitive concerns as with addressing problems of risk. There was much criticism of this approach for protecting the universal bank from competition from nonbank securities firms.²²

III “Unbundling” the TBTF Bank Conundrum

A Introductory Remarks

It is widely argued that the reason for the oligopolistic and highly concentrated structure of banking markets is that bigger institutions enjoy funding advantages. As explained later this assertion is largely true and also amounts to a clear distortion of competition. At the same time, it is not clear how detrimental is the impact of these distortions on customer welfare. Either way in order to unpick the different elements of the TBTF bank conundrum we best consider first how these banks became TBTF. The rationales for the historical trend toward repeal of legislation that controlled conglomeration and to some extent size have already been discussed. However, it would be unreasonable to assume that the push toward conglomeration was disconnected from

Commission and Basle Committee Approaches”, *BNL Quarterly Rev.*, no 194, Sept. 1995, 183; G. Walker, “The Law of Financial Conglomerates”, (1996) 30 *Int’l. L.* 57. CAD has since been supplanted by EU legislation and EU banks and investment firms’ capital requirements are regulated today by Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms [2013] OJ L 176/18, normally called the EU Credit Requirements Regulation (CRR).

²² For example, E. Dimson and P. Marsh, *The Debate on International Capital Requirements* (London, City Research Project, Subject Report 8, 1994).

two key shareholder concerns: first, organizational advantages, that is, attainment of economies of scale and scope, and, secondly, capital optimization, namely, maximization of ROE.

In the case, of TBTF banks the aforementioned shareholder considerations are inextricably linked to the well-documented funding advantage that TBTF banks enjoy, so-called TBTF subsidy. Thus, in the next few paragraphs I, first, discuss claims and counterclaims in relation to the social utility of TBTF banks. Then, I turn, with the aid of contemporary empirical studies, to discuss the nature of the TBTF subsidy, and the validity of economies of scale and scope assumptions about TBTF banks and the impact of TBTF banks on competition. In this context, I also look at the role of ROE optimization by means of increased leverage of what essentially were failure proof organizations.

⌘ Benefits and Disutilities of TBTF Banks

The universal banking model acquired strong supporters among the economics profession in the 1990s and 2000s.²³ It was argued that permitting banks to conduct securities and insurance activities presented several advantages²⁴: (a) exploitation of economies of scale and scope in gathering and processing information about firms, (b) risk diversification, (c) building a diversified base of activities leads to a more stable source of income and thus more stable banks, and (d) building reputation capital with clients, and increasing the franchise value of banks and

²³ JR Barth, G Caprio, Jr, and R Levine, “Bank Regulation and Supervision: What Works Best?”, NBER Working Paper No. W9323, November 2002.

²⁴ See JR Barth, RD Brumbaugh and JA Wilcox, “The Repeal of Glass-Steagall and the Advent of Broad Banking”, (2000) 14 *Journal of Economic Perspectives* 191; S. Claessens, D. Klingebiel, “Competition and Scope of Activities in Financial Services”, World Bank, mimeo, April 2000.

thereby augment incentives for banks to behave prudently.²⁵ Also it was suggested that restricting the kind of activities a bank may undertake hinders bank development²⁶ and thus economic growth.

Arguably, greater diversification of earnings may be associated with more stable, safer, and ultimately more valuable financial institutions. The lower the correlations among the cash-flows from a firm's various financial intermediation activities, the greater the benefits of diversification.²⁷ In principle this should have produced higher credit quality and higher debt ratings (lower bankruptcy risk), therefore lower cost of capital than faced by narrower, more focused firms. Likewise, greater earnings stability should bolster share prices. Key to the business of banking is risk processing and absorption. And confidence in a bank requires it to be safe. Diversification is then needed to be able to absorb risks augmenting bank safety.

But the recent crisis has proven beyond doubt that these welfare gains did not materialize. I postulate that this is due to three reasons none of which is directly related to the TBTF subsidy that will be discussed in the ensuing paragraphs: (a) TBTF banks suffered severe agency

²⁵ For the perceived relationship between franchise value and bank management's incentives to behave prudently see M. Keeley, "Deposit Insurance, Risk, and Market Power in Banking", (1990) 80 *American Economic Review* 1183–1200; R. S. Demsetz, M. R. Staidenberg and P. E. Strahan, "Banks with Something to Lose: The Disciplinary Role of Franchise Value", (1996) 2 *Economic Policy Review* 1.

²⁶ Barth, Caprio and Levine (2002), *supra* note 23, pp 31–32.

²⁷ Saunders and Walter (2011).

problems; (b) homogenization induced by rational herding and externally imposed capital regulations;²⁸ and (c) cultural changes.

Agency problems within TBTF banks are caused by three factors. First, shareholders have quite different objectives to those of creditors who will absorb the cost of bank bankruptcy,²⁹ independently or in addition to any taxpayer costs. Secondly, adverse compensation incentives made bank employees aggressive risk seekers. Thirdly, complexity was a very strong barrier for shareholders or creditors who would be willing to exercise market discipline.³⁰ Fourthly, lax capital regulations and lack of leverage checks, created incentives to massively expand bank balance sheets through reckless lending,³¹ not just in order to inflate profits and pay packages but also for job retention and career advancement purposes.³² The cumulative impact of agency problems, complexity, and herding was that TBTF multifunctional

²⁸ See E. Avgouleas, *Governance of Global Financial Markets, the Law, the Economics, the Politics* (CUP, 2012), chapters 2 and 3.

²⁹ A. Admati and M. Hellwig, “The Leverage Ratchet Effect”, Rock Center for Corporate Governance at Stanford University Working Paper 146, June 2013, available at www.gsb.stanford.edu/sites/default/files/research/documents/Leverage%20Ratchet%20Effect.pdf.

³⁰ E. Avgouleas and J. Cullen, “Excessive Leverage and Bankers’ Pay: Governance and Financial Stability Costs of a Symbiotic Relationship”, 20(2) *Columbia Journal of European Law*, 2014/5, forthcoming, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2412869.

³¹ See Parliamentary Commission on Banking Standards, “An accident waiting to happen”: The failure of HBOS, Fourth Report of Session 2012–13 HL Paper 144, HC 705, 4 April 2013, paras 28, 30, 39. [Hereinafter, *Parliamentary Report 2013*].

³² Avgouleas and Cullen, *Excessive Leverage* (2014/5).

banks eventually became, apart from a systemic threat, a serious financial system governance and integrity risk.

Management's and shareholders' opportunistic behavior and a marked shift in organizational ethics and culture, which degraded the role of proper risk controls and risk divisions within the bank,³³ and inherent complexity within the multifunctional bank business model eventually meant that TBTF multifunctional banks became very hard to manage³⁴ and regulate. This assumption explains why TBTF (multifunctional) banks have been at the heart of most contemporary financial scandals, whether it is with respect to rotten advice given to consumers and investors in the context of the subprime crash or the LIBOR³⁵ and Forex markets' ringing³⁶ or alleged money laundering³⁷.

³³ The Parliamentary Report on the failure of the HBOS characteristically notes: "The risk function in HBOS was a cardinal area of weakness in the bank..." The degradation of the risk function was an important factor in explaining why the high-risk activities of the Corporate, International, and Treasury Divisions were not properly analyzed or checked at the highest levels within the bank. (Para 64). The weaknesses of group risk in HBOS were "a matter of design, not accident... (Para 65)" (emphasis added). Parliamentary Report 2013, *supra* note 31.

³⁴ Ibid. at Para 53.

³⁵ See "The LIBOR scandal: The rotten heart of finance – A scandal over key interest rates is about to go global", *The Economist* 7 July 2012, available at www.economist.com/node/21558281; Kristen Dooley, "The LIBOR Scandal", note in 32 *Review of Banking and Financial Law* 2–12 (2013), available at www.bu.edu/rbfl/files/2013/09/The-LIBOR-Scandal.pdf.

³⁶ "Foreign exchange allegations 'as bad as Libor', says regulator", *BBC*, 4 February 2014, quoting Martin Wheatley, the head of the UK's Financial Conduct Authority, available at www.bbc.co.uk/news/business-26041039. See also J. McGeever, "TIMELINE-The FX 'fixing' scandal", Reuters, 31 March 2014, available at <http://uk.reuters.com/article/2014/03/31/swiss-forex-investigation-events-idUKL6N0M71KO20140331>; J. Moore, "RBS boss warns Forex scandal could be bigger than Libor rigging", *The Independent*, 18 July 2014, available at www.independent.co.uk/news/business/news/rbs-boss-warns-forex-scandal-could-be-bigger-than-libor-rigging-9616316.html

The trend toward homogenization, on the other hand, had two potent sources. The first was capital regulations, which provided ample opportunity for regulatory arbitrage inducing symmetric (gaming) behavior by big banks to minimize capital retention. The second was the use of similar risk measurements and risk mitigation techniques, the latter also based on Basel standards.³⁷ The cumulative effect of regulatory and industry harmonization of capital and risk measurement techniques was homogenization of different business divisions' income streams, which became dependent on the same markets (e.g., housing) even if the markets and the products sold were much different (e.g., cash mortgages, ABS, CDOs, or CDSs over the ABS).³⁸ Eventually, all multifunctional banks adopted a “follow the leader” strategy,³⁹ making them very vulnerable to the first change in the financial winds in 2007, that is, the subprime mortgage crisis.

³⁷ United States Senate, Permanent Subcommittee on Investigations, “HSBC Exposed U.S. Financial System to Money Laundering, Drug, Terrorist Financing Risks – Senate Subcommittee Holds Hearing and Releases Report”, Monday, 16 July 2012, available at www.hsgac.senate.gov/subcommittees/investigations/media/hsbc-exposed-us-finacial-system-to-money-laundering-drug-terrorist-financing-risks. The outcome of the investigation was reported by the BBC as follows: “HSBC to pay \$1.9bn in US money laundering penalties”, *BBC*, 11 December 2012, available at www.bbc.co.uk/news/business-20673466. For similar incidents see J. Schneider, “FBI Says Cartel Used Bank of America to Launder Money”, *Bloomberg*, 9 July 2012, available at www.bloomberg.com/news/2012-07-09/fbi-says-cartel-used-bank-of-america-to-launder-money.html.

³⁸ K. Alexander, J. Eatwell, A. Persaud and R. Reoch, “Financial Supervision and Crisis Management in the EU”, Study for the European Parliament Committee on Economic and Monetary Affairs, Brussels, Dece. 2007, sections 1 and 2.

³⁹ Parliamentary Report 2013, *supra* note 31, Pars 42–43.

⁴⁰ A. G. Haldane, “Rethinking the Financial Network”, Speech to the Financial Student Association, Amsterdam, 28 April 2009, pp. 3–4, available at www.bis.org/review/r090505e.pdf.

A third explanation is a shift in the culture and ethics of the industry⁴¹ that was possibly due to the “contamination” of big commercial banks by the operating and management style of investment banks that led to weakened risk management controls and a persistent focus on ROE.⁴² Not a direct consequence of conglomeration but indicative of the casual attitude to risk that it created was the excessive use by banks of asset securitization and the adoption of the hazardous originate-to-distribute model, which meant that megabanks were the principal promoters of subprime mortgages and the key drivers behind their growth to disastrous levels.⁴³ The notion that risk could be endlessly diversified through “originate-to-distribute” led to a serious relaxation of credit risk controls by originator banks.⁴⁴

Apart from the havoc wreaked on global financial stability and economic welfare by badly shaken TBTF banks during the 2008 turmoil, another major welfare loss that may be attributed to conglomeration is that the financial system did not innovate in a way that would enhance growth and manage household risks. Instead financial innovation was driven by tax and regulatory arbitrage and obfuscated bank balance sheets undermining market discipline and

⁴¹ The terrible fall in standards of customer care and the unethical behavior associated with recent banking scandals like Libor are very well documented in the Report of the Parliamentary Commission on Banking Standards, “Changing banking for good”, *Vol. II*, HL Paper 27-II HC 175-II, 19 June 2013.

⁴² For a discussion of the impact of this shift in cultural attitudes in the banking industry see in this volume W. Blair, “Reconceptualizing the Role of Standards in Supporting Financial Regulation”, this volume, [Chapter 21](#); R. Buckley, “The Changing Nature of Banking and Why it Matters”, this volume, [Chapter 2](#).

⁴³ Wilmarth, *supra* note 17, pp. 1017–1022.

⁴⁴ E. Avgouleas, “The Global Financial Crisis, Behavioural Finance and Financial Regulation: In Search of a new Orthodoxy”, (2009) 9 *Journal of Corporate Law Studies* 121.

regulatory monitoring. Thus, it increased risk, which was warehoused in opaque parts of the system, and within large multifunctional banks.⁴⁵

Having more or less explained the rationale for size and conglomeration in banking markets I turn now to examine whether such arguments hold true on the basis of economic theory (economics of the bank industrial organization) and empirical studies.

C. Economics of Industrial Organization and the TBTF Bank

Saunders and Walter note that, on the basis industrial economics theory, “the structural form of firms pursuing economic activity should follow the dictates of institutional comparative advantage. If there are significant economies of scale that can be exploited, it will be reflected in firm size”.⁴⁶ If there are significant economies of scope that can be exploited – either in terms of costs or revenues – it will be reflected in the range of activities in which successful firms are engaged. In principle, if productive linkages can be built across geographies or client segments or business lines, it too will be reflected in the breadth and geographic scope of the underlying drivers of the structure of financial intermediaries.⁴⁷ Namely, in a pure market-driven context, optimum institutional structure is driven by the production functions of financial intermediaries, on the one hand, and preference functions of end users, on the other. Thus, in theory, distortions

⁴⁵ See E. Avgouleas, “Regulating Financial Innovation: A Multifaceted Challenge to Financial Stability, Consumer Protection, and Growth” in E. Ferran, N. Moloney, J Payne (eds) *Oxford Handbook on Financial Regulation* (Oxford University Press, 2015) chapter 23, forthcoming.

⁴⁶ A. Saunders and I. Walter, “Financial Architecture, Systemic Risk, and Universal Banking”, 26 *Fin. Markets and Portfolio Mgt* 39–59 (2012), p. 48.

⁴⁷ Ibid. pp. 41–49.

in markets for financial intermediation in the form of taxes, explicit or implicit subsidies, and regulatory constraints will alter structural optimization and create efficiency losses in the financial system.⁴⁸

(i). Building Size: The Economies of Scale Assumption

In terms of revealed preferences banks present a paradox compared to other forms of business organization: they prefer to combine many different activities instead of focusing on maximization of competitive advantage. This paradox also distinguishes banks from other financial services firms, for, example nonbanking financial institutions like mutual funds and finance companies. The latter often choose to specialize and therefore are much more transparent. Adjusting for scale and operating efficiency the range of activities engaged in by financial intermediaries can have both cost and revenue benefits.⁴⁹ Sources of scale and scope economies include the following:

- i. Information technology-related economies
- ii. Reputation and marketing/brand name-related benefits
- iii. (Financial) Innovation-related economies
- iv. Diversification benefits⁵⁰

⁴⁸ Ibid.

⁴⁹ Ibid. p. 50.

⁵⁰ A. Boot, “Restructuring in the Banking Industry with Implications for Europe” in 8(1) 2003 EIB Papers (Europe’s Changing Financial Landscape: Recent Developments and Prospects), 108, pp. 110 *et seq.*

Information technology-related economies particularly refer to back-office efficiencies and distribution network-related benefits, at the same time transaction processing offers distinct scale economies. Information technology developments facilitate an increasing array of financial products and services to be offered through the same distribution network, and thus allow for cross selling.⁵¹ Reputation and brand name or marketing-related economies might be present in the joint marketing of products to customers.⁵²

On the basis of the foregone discussion, economies of scale within financial conglomerates should have been an undisputable fact. Yet the empirical evidence is as contradictory as the theoretical literature is straightforward.⁵³ Scale and scope economies in banking have been studied extensively. In general, studies are divided into those which are agnostic,⁵⁴ strongly positive, or strongly negative. The result of earlier studies was that economies of scale were exhausted at relatively small-size banks (under ten billion USD in

⁵¹ Ibid.

⁵² Ibid.

⁵³ Ibid.

⁵⁴ A. N. Berger, R. S. Demsetz and P. E. Strahan, “The Consolidation of the financial Services Industry: Causes, Consequences and Implications for the Future”, 23 *Journal of Banking and Finance* 135–194 (1999), concluded that, in general, the empirical evidence cannot readily identify substantial economies of scale or scope.

assets).⁵⁵ Yet more recent studies point at more persistent scale economies. Wheelock and Wilson (2009)⁵⁶ and Feng and Serletis (2010)⁵⁷ find increasing returns to scale.

These more recent studies use a different methodology, correcting to some extent possible flaws in earlier studies,⁵⁸ but more importantly they utilize more advanced IT technology and wider availability of data, given how much more transparent banks have become since 2008. This is important because it is unclear if earlier researchers had access to information about efficiencies and profitability of individual business division within banks, figures that all big bank management prefers to obfuscate. To this effect, and challenging earlier assumptions, the most recent studies show that size in banking is linked to economies of scale in a variety of contexts⁵⁹ and especially improves banks operating costs, understood as noninterest costs like

⁵⁵ For an excellent discussion of these studies see Boot, *supra* note 50, pp. 23–26.

⁵⁶ D. C. Wheelock and P. Wilson, “Are U.S. Banks Too Large?”, Working Paper 2009–054 (2009), Federal Reserve Bank of St. Louis.

⁵⁷ G. Feng and A. Serletis, “Efficiency, Technical Change, and Returns to Scale in Large US Banks: Panel Data Evidence from an Output Distance Function Satisfying Theoretical Regularity”, 34 *Journal of Banking and Finance* 127–138 (2010).

⁵⁸ E.g., L. J. Mester, “Scale Economies in Banking and Financial Regulatory Reform”, Note in: The Region. Federal Reserve of Minneapolis, Sept. 2010, available at www.minneapolisfed.org/publications_papers/pub_display.cfm?id=4535

⁵⁹ J. Hughes and L. Mester, “Who Said Large Banks Don’t Experience Scale Economies? Evidence from a Risk-Return- Driven Cost Function”, 22 *Journal of Financial Intermediation* 559–85 (2013); D. C. Wheelock and P. W. Wilson, “Do Large Banks Have Lower Costs? New Estimates of Returns to Scale for U.S. Banks”, 44 *Journal of Money, Credit, and Banking* 171–99 (2013).

employee remuneration, cost of premises, IT infrastructure etc.⁶⁰ Naturally, evidence of economies of scale is higher in efficiently run versus inefficient banks,⁶¹ exhibiting the value of good and sensible management.

(ii). Conglomeration and Economies of Scope

Unlike most success stories in financial services where focus tends to reap supracompetitive rewards, for example, Goldman Sachs, Euroclear, Blackstone, banks tend to diversify the scope of their activities. As explained earlier, this is in part in order to diversify sources of income. But this is not the only purpose. In the period before 2008 it was consistently argued that conglomeration in the financial sector was motivated by and presented distinct economies of scope. According to Saunders and Walter, “revenue economies of scope in financial intermediation arise when the all-in cost to the buyer of multiple financial services from a single supplier is less than the cost of purchasing them from separate suppliers. This includes search,

⁶⁰ It is suggested that quantitatively a 10 per cent increase in assets is associated with 0.3 to 0.6 per cent decline in noninterest expense scaled by income or assets, depending on specification. A. Kovner, J. Vickery and L. Zhou, “Do Big Banks Have Lower Operating Costs?”, 20(2) *Federal Reserve Bank of Economic Policy Review*, March 2014, 1–44, pp. 221–22. The authors of the aforementioned study have found evidence that lower operating costs are a source of scale economies because large banks spread overheads associated with IT and accounting systems and marketing over a larger asset or revenue base. *Id.* pp. 2, 12–18, 21 with extensive tables. It is the present author’s view that such detailed studies would not have been possible to prior to 2008. In addition the authors of the aforementioned study are researchers based in the NY Fed, which means they had access to an extensive range of unpublished (nonconfidential) data than authors of earlier studies.

⁶¹ Hughes and Mester, *supra* note 59.

monitoring, and contracting costs”.⁶² Financial intermediaries that are diversified could achieve cost reductions by cross-selling as well as selling a broader rather than narrower range of products. At the same time, shared IT platforms, client database, branch networks, as well as data mining constitute a fixed cost that be spread better in a bigger organization.

Accordingly, like economies of scale, cost-related scope economies should be directly observable in production functions of financial services suppliers and in aggregate performance measures.⁶³ Yet, unlike the mixed to positive picture offered by the aforementioned studies on the relationship between bank size and economies of scale, most empirical studies⁶⁴ have failed to find significant cost economies of scope in the banking, insurance or securities industries. On the contrary, there is evidence of diseconomies of scope, which emanate from three sources: new product costs,⁶⁵ the diversification discount,⁶⁶ and organization complexity that leads to inefficient management and regulatory supervision.

Significant cost-scope economies or diseconomies should be reflected on investor valuations of financial intermediaries and these valuations should, in principle, be an important

⁶² Saunders and Walter, *supra* note 46, p. 51.

⁶³ Ibid.

⁶⁴ For a very comprehensive overview of these studies see Boot, *supra* note 50, pp. 24–26.

⁶⁵ For example, it has been observed that when financial services firms add new product lines and the product range widens, unit-costs seem to go up and not down. *Ibid.*

⁶⁶ The most common meaning of this term is that due to conglomerate’s opaque balance sheets and complex business activities capital markets value the whole of the business less than the sum of its parts. This is in line with corporate finance theory that tells us that investors can choose to diversify and that this does not need to be done at the firm level.

factor (alongside financial stability and consumer welfare) in choosing optimal institutional structures in banking. Yet a strong line of studies point to the opposite direction revealing the existence of a persistent discount in valuations of financial conglomerates. The more recent studies, starting with Laeven and Levine (2007)⁶⁷ confirm the existence of a diversification discount in banks that combine lending and nonlending financial services, mostly reflecting potential agency problems and inefficiencies associated with cross-subsidies. Schmid and Walter (2009)⁶⁸ confirm the Laeven and Levine (2007) results, and verify that this discount is indeed caused by diversification, and not by inefficiencies that already existed before the diversification.⁶⁹

Rajan, Servaes, and Zingales (2000)⁷⁰ showed that the interrelation between activities within the conglomerate is of crucial importance. Diversified firms can trade at a premium if the dispersion between activities is low. High dispersion induces inefficiencies, which add credence to the hypothesis that focus adds value to the business of banking. Evidence from capital markets' reaction to financial sector mergers reinforces this view. DeLong (2001) examined shareholder

⁶⁷ L. Laeven and R. Levine, "Is There a Diversification Discount in Financial Conglomerates?", 85 *Journal of Financial Economics* 331–367 (2007).

⁶⁸ M. M. Schmid and I. Walter, "Do Financial Conglomerates Create or Destroy Economic Value?" 18 *Journal of Financial Intermediation* 193–216 (2009).

⁶⁹ Both studies, using large data panels, have attempted to ascertain whether or not functional diversification is value enhancing or value destroying in the financial services sector and estimate the value-reduction effect at about 20%. Ibid.

⁷⁰ R. Rajan, H. Servaes and L. Zingales, "The Cost of Diversity: The Diversification Discount and Inefficient Investment", 55 *Journal of Finance* 35–80 (2000).

gains from focused versus diversifying bank mergers in the United States between 1988 and 1995.⁷¹ Focused mergers, in terms of kind of activity undertaken by the merger firms and geographic dispersion, were found to result in a positive effect on the immediate postannouncement share prices. Activity- diversifying mergers had no positive announcement effects.⁷²

The consequences of the rise in agency costs in financial conglomerates have been evident in the already discussed Libor, FX rigging, and money-laundering scandals. Impossible to manage and too complex to regulate banking conglomerates turned into a constant integrity and efficiency risk for the financial system. While the spotlight has fallen on rotten cultures and ethics within the “chastened” banks, banking conglomerates were likely to encounter several of the revealed abuses, even in the absence of infractions of ethical standards. Simply put, the broader the range of financial firm activities, in the presence of imperfect information, the greater the probability that the firm will encounter conflicts of interest.

Agency costs due to complexity that conglomeration brings means that sooner or later business lines’ diversification will destroy shareholder and franchise value through a marked rise in agency costs and inefficient use of capital. Namely, conglomerates tend to use capital inefficiently and this is independently of the colossal conduct costs that the scandals discussed earlier brought about in the form of payment billions of dollars in regulatory fines and other

⁷¹ G. DeLong, “Stockholder Gains from Focusing versus Diversifying Bank Mergers”, 59 *Journal of Financial Economics* 221–242 (2001).

⁷² Ibid. In the author’s view these results may indicate the presence of scale rather than scope economies in banking.

sanctions.⁷³ Managerial discretion to engage in value-reducing projects, cross-subsidization of marginal or loss-making projects that drain resources from healthy businesses, misalignments in incentives between central and divisional managers seem to be as responsible.⁷⁴ In addition, as Boot⁷⁵ accurately argues that conglomeration proved an excellent technique to bury trade-related losses in the group balance sheet and it was, thus, mostly favored by senior bank management that came from the investment banking side.⁷⁶

These findings make shareholder preference for conglomeration, or, at least, no resistance to, it even more puzzling. I argue that there is a twofold explanation for this seeming departure from shareholder self-interest maximization. First, conglomeration renders the biggest parts of the financial group TBTF, incentivizing, thus, shareholders to seek leverage and take advantage of the TBTF subsidy. Secondly shareholder preference for/nonresistance to conglomeration in the financial sector may be evidence of the prevalence of bounded rationality even within sophisticated capital market actors.

⁷³ A very good study by the LSE Bank conduct costs project run by R. McCormick has indicated that conduct costs for the ten world-leading banks in the period between 2008–2012 have neared 150 billion GBP. See for the requisite table the period between 2008–2012 <http://blogs.lse.ac.uk/conductcosts/bank-conduct-costs-results/>.

⁷⁴ P. G. Berger, E. Ofek, “Diversification’s Effect on Firm Value”, 37 *Journal of Financial Economics* 39–65 (1995).

The bulk of value erosion in conglomerates is usually attributed to overinvestment in marginally profitable activities and cross-subsidization. Id.

⁷⁵ Boot, *supra* note 50, pp. 16–20.

⁷⁶ In the present author’s view Bob Diamond’s ascent to the top of Barclays PLC is only one instance of proven domination of senior management jobs in big universal banks by investment bankers in the 2000s.

D The TBTF Subsidy and Bank Competition

(i) Evidence of the TBTF Subsidy

In general, big systemic banks, so-called too-big-to-fail banks enjoy a strong advantage in terms of costs of funding, which smaller institutions do not. There have been numerous quantitative studies of the “subsidy” provided by the implicit government bail-out guarantee to the larger banks that are too-big-to-fail. The first in a line of several such studies was by Andy Haldane who made the bold claim that direct and indirect state subsidies to big banks amounted to 25 percent of world GDP.⁷⁷ This was followed by several others providing similar conclusions, for example, Ueda and Weder-Di Mauro, 2011⁷⁸; Li et al. 2011,⁷⁹ with the latest authoritative study finding that the funding discount enjoyed by TBTF banks could rise to as high as (-)1.21 percent (Santos, 2014⁸⁰). The TBTF funding subsidy constitutes a clear distortion of competition.

⁷⁷ A. G. Haldane, “On Being the Right Size”, Institute of Economic Affairs, 21 Beesley Lecture, 25 October 2012, p. 4 et seq., available at www.bankofengland.co.uk/publications/Documents/speeches/2012/speech615.pdf. In fact, Haldane argues that any economies of scale in TBTF banks comes due to the funding advantage ensured by the TBTF subsidy. However, the Kovner et al. study cited in note 57 earlier, which found strong evidence of economies of scale in big banks, measured noninterest operating costs.

⁷⁸ K. Ueda and B. Weder Di Mauro, “Quantifying the Value of the Subsidy for Systemically Important Financial Institutions”, IMF Working Paper 12/128, (2011).

⁷⁹ Z. Li, S. Qu and J. Zhang, “Quantifying the Value of Implicit Government Guarantees for Large Financial Institutions. Moody’s Analytics Quantitative Research Group”, (January 2013).

⁸⁰ See J. Santos, “Evidence from the Bond Market on Banks’ ‘Too-Big-To-Fail’ Subsidy”, 20 *Federal Reserve Bank of New York, Economic Policy Review* (Special Issue: Large and Complex Banks), March, 2014.

Taking advantage of lower funding costs, larger banks can cut margins aggressively, offering new clients better lending terms, to edge out smaller competitors (Hakenes and Schnabel, 2011),⁸¹ a clear distortion in terms of playing field. Yet it is unclear if this is the sole or even the main reason for the very high levels of concentration experienced by banking markets in most major economies where banking products and services are offered by a small group of very large banks. Thus, I provide below a more in-depth analysis of issues of competition in the banking sector.

(ii). Bank Competition and Systemic Stability: How Much Competition Is Too Much?

As explained earlier, the banking industry has been building size for at least two decades and the recent forced mergers and acquisitions, in order to avoid bank collapses, have only intensified this phenomenon. It is, however, unclear whether banking markets present highly oligopolistic structures because banking is an industry that offers its services more efficiently through large-size institutions, or because regulatory controls and licensing requirements are so expensive as to deter new entrants from entering the market, especially in the market for retail banking services where the margins for profit can be quite low.

There are two basic hypotheses in the literature on the relationship between financial stability and competition: the *franchise value paradigm* (competition-fragility view) and the *risk-shifting hypothesis* (competition-stability view).⁸² The competition- fragility view contends that

⁸¹ R. Gropp, H. Hakenes, and I. Schnabel, “Competition, Risk-shifting, and Public Bail-Out Policies”, 24 *Review of Financial Studies* 2084–2120 (2011).

⁸² For analytical discussion of the two hypotheses see M. López-Puertas Lamy, “Commercial banks versus Stakeholder banks: Same business, same risks, same rules?”, mimeo, 2012, pp. 3–6, available at

an increase in competition will hurt bank stability by eroding the franchise value.⁸³ Based on empirical findings and theoretical simulations these studies postulate that less competitive banking systems are less fragile because the numerous lending opportunities, high profits, capital ratios, and charter values of incumbent banks make them better placed to withstand demand- or supply-side shocks, and provide disincentives for excessive risk taking.⁸⁴

The competition-stability view holds that competition leads to less fragility, because the market power of banks results in higher interest rates for customers, making it more difficult for them to repay loans.⁸⁵ The market power of banks results in higher interest rates for customers, making it more difficult for them to repay loans, increasing the possibility of loan default and increasing risk for bank portfolios, making the financial system less stable.⁸⁶

Most recently, Martinez-Miera and Repullo (2010) suggest a nonlinear relationship between bank competition and financial stability, arguing that heightened competition may reduce a borrower's probability of default (referred to as the risk-shifting effect), but it may also reduce interest payments from performing loans, which serve as a buffer to cover loan losses (referred to as the margin effect). They find evidence of a U-shaped relationship between

www.globalcube.net/clients/eacb/content/medias/events/research_awards_2012/cooperative_banks_vs_commercial_banks_Lamy_monica.pdf.

⁸³ F. Allen and D. Gale, "Competition and Financial Stability", 36 *Journal of Money, Credit and Banking* 453–480 (2004); E. Carletti, "Competition and Regulation in Banking" in A Boot, A Thakor, (eds.) *Handbook of Financial Intermediation and Banking* (Amsterdam: Elsevier, 2008), [chapter 14](#).

⁸⁴ Ibid.

⁸⁵ Boyd and De Nicoló, *infra* note 88.

⁸⁶ Ibid.

competition (measured by the number of banks) and bank stability. In highly concentrated markets, the risk-shifting effect dominates and more competition reduces bank risk, while in very competitive markets the margin effect dominates, and increased competition erodes bank franchise value and hence increases risk.⁸⁷

Overall empirical evidence with respect to whether competition enhances or reduces bank stability is mixed. While some researchers find that the risk of bank failure increases in less competitive markets,⁸⁸ others find that risk decreases with a rise in the market power of incumbent banks.⁸⁹ Berger et al. (2009), using a variety of risk and competition measures from twenty-three countries, provide limited support to both the competition-fragility and competition-stability views.⁹⁰ Specifically, they find that market power increases credit risk, but banks with more market power face less risk, overall, which also is in accord with the conclusions of the Jimenez et al. study.

⁸⁷ D. Martinez-Miera, R. Repullo, “Does Competition Reduce the Risk of Bank Failure?”, CEPR Working Paper DP6669/2009.

⁸⁸ See J. H Boyd and G. De Nicoló, “The Theory of Bank Risk Taking and Competition Revisited”, 60 *Journal of Finance* 1329–1343 (2005); J. Boyd, G. De Nicoló, A. Al Jalal, “Bank risk taking and competition revisited: New theory and new evidence”, mimeo, Carlson School of Management, University of Minnesota, 2006.

⁸⁹ G. Jiménez, J. A. López and J. Saurina, “How does competition impact bank risk taking?” Federal Reserve Bank of San Francisco, Working Paper 2007–23, Sept. 2007, available at www.frbsf.org/publications/economics/papers/2007/wp07-23bk.pdf.

⁹⁰ A. N. Berger, L. F. Klapper, R. Turk-Ariss, “Bank competition and financial stability”, 35 *Journal of Financial Services Research* 99–118 (2009).

The view that “too much” competition could undermine instead of fostering financial stability is clearly upheld by IMF experts:⁹¹ “Limited competition and strong regulation, which limits banking activities and requires banks to have more equity (i.e., shareholder funds) and more secure investments, can lead to a more secure banking system”.

Ratnovski accurately postulates that this is due to problems of corporate governance. Shareholders face inverse incentives, as they normally wish to pursue profitability at the expense of safety and creditors, turning thus into weak corporate monitors.⁹² Moreover, complexity of bank business provides yet another obstacle to strengthening shareholders’ role as monitors⁹³ and it may be also an obstacle to shareholders’ pushing for more competition if they do not have an accurate picture of which part of the bank’s business has the highest potential.

Experience shows that Canada and Australia, which were among the least-affected countries by the GFC, were dominated by very few big banks, due to previous crises and older rounds of banking sector consolidation, which increased bank resilience.⁹⁴ It is disputed, however,

⁹¹ L. Ratnovski, “Competition Policy for Modern Banks”, International Monetary Fund, WP/13/126, 2013, available at www.imf.org/external/pubs/ft/wp/2013/wp13126.pdf.

⁹² Ibid.

⁹³ See also Avgouleas and Cullen, *supra* note 7.

⁹⁴ N. Arjani and G. Paulin, “Lessons from the Financial Crisis: Bank Performance and Regulatory Reform”, Bank of Canada Discussion Paper 2013–4 December 2013, pp. 1–5. Others, on the other hand, like ex IMF chief economist Simon Johnson argue that Canadian banks were more undercapitalized and leveraged than U.S. banks and what made them more stable was the fact that Canadian banks paid a very low premium to have their mortgages insured by the federal government. Peter Boone and Simon Johnson, “The Canadian Banking Fallacy”, blog entry, 25 June 2010 <http://baselinescenario.com/2010/03/25/the-canadian-banking-fallacy/>.

that these oligopolies made markets less competitive especially when it came to pricing consumer products. For example, a 2013 IMF paper on the matter shows Australia and Canada presenting medium intensity levels of competition.⁹⁵

But these observations ought not to be taken too far and up to the point that consumer welfare is detrimentally affected. They just mean that measures to increase competition in banking presuppose that the banking system is already robust to ameliorate any systemic stability impact that enhanced competition may have. As explained in the Vickers Report the banking industry in the United Kingdom (and in other countries) presents higher levels of concentration after the crisis than before, given the merger of major commercial banks in the aftermath of the crisis (e.g., Lloyds Bank with Halifax Bank of Scotland).⁹⁶ This ought to be a matter of concern for regulators because the concentration of retail accounts has reached such a level as to restrict consumer choice.⁹⁷ More recently, the United Kingdom's Competition and Markets Authority has conducted a review of the industry and reached some "damning" conclusions.⁹⁸ CMA is now

⁹⁵ Ratnovski, *supra* note 91.

⁹⁶ Independent Commission on Banking, "Final Report – Recommendations", September 2011, p. 16–18 and chapters 6–8, available at <https://hmt-sanctions.s3.amazonaws.com/ICB%20final%20report/ICB%2520Final%2520Report%5B1%5D.pdf>.

⁹⁷ Ibid. pp. 154–156.

⁹⁸ The CMA found that: "Essential parts of the UK retail banking sector lack effective competition and do not meet the needs of personal consumers or small- and medium-sized enterprises (SMEs)". CMA, "CMA consulting on provisional decision to launch an in-depth investigation", 18 July 2014, www.gov.uk/government/news/personal-current-accounts-and-small-business-banking-not-working-well-for-customers.

moving toward a “root and branch” review of the conditions of competition in the UK banking industry.⁹⁹

(iii). Capital Structure “Optimization” and Excessive Leverage

There is ample evidence to show that funding advantages allowed TBTF institutions to expand their balance sheets through leverage and there is sufficient evidence to show that too-big-to-fail banks are prone to take much riskier assets than other banks.¹⁰⁰ It is, however, unclear whether in the absence of leverage restrictions, elimination of TBTF subsidy will radically alter bank management behavior. While Admati, Hellwig, and others¹⁰¹ accurately point out that bankers are addicted to leverage and they have also overlooked an important element. Shareholder pressure on bank management to build leverage and thus maximize ROE may be the only survival and career-advancement strategy even for the most prudent of bank managers if their competitors are doing the same. I have written on this matter elsewhere¹⁰² and the discussion has

⁹⁹ See CMA, “Competition and Markets Authority case Personal current accounts and SME banking”, 1 August 2014, www.gov.uk/cma-cases/review-of-banking-for-small-and-medium-sized-businesses-smes-in-the-uk.

¹⁰⁰ G. Afonso, J. Santos, J. Traina, “Do ‘Too Big To Fail’ Banks Take on More Risk?”, 20 *Federal Reserve Bank of New York, Economic Policy Review* (March 2014) Special Issue: Large and Complex Banks; M. Brandao, L., R. Correa, and H. Saprizza. 2013. “International Evidence on Government Support and Risk Taking in the Banking Sector”, International Monetary Fund Working Paper no. 13/94.

¹⁰¹ Admati and Hellwig, *supra* note 29.

¹⁰² Avgouleas and Cullen, *Excessive Leverage* (2014/5).

been upheld and furthered by the *Financial Times* in a recent editorial,¹⁰³ so no more will be said here.

¶ Was Glass Steagall Successful?

While the arguments of its critics proved to have shaky foundations, the financial stability benefits of Glass Steagall have been beyond much doubt. Apart from the crisis in the Savings & Loans sector of the late 1980s and early 1990s, which saw 747 thrift failures (out of 3,234)¹⁰⁴ but did not in the end infect systemic financial institutions covered by the Act, the U.S. financial sector suffered no major crisis during the life the Act. During the same period the United States saw the failure of only one systemic institution, the Continental Illinois Bank and Trust Company in 1984.

At the same time, it is hypothesized that the Act, by adding focus, which led to creating high level skills and impetus in the search of new revenues, was, in part, responsible for the progressive dominance of U.S. investment banks in rapidly evolving offshore and onshore capital markets worldwide. The gradual liberalization and integration of global markets since the 1970s also meant that American securities firms progressively dominated the competitiveness tables edging out European universal banking behemoths and their Asian counterparts, which

¹⁰³ M. Arnold, “Tale of Two Banks Exposes Pay as Wrong Target of Critics – UK’s Co-op is opposite extreme to Wells Fargo of US”, *FT*, 14 April 2014, available at www.ft.com/cms/s/0/a9a41d96-c3e1-11e3-a8e0-00144feabdc0.html#axzz3C5WYTP7K.

¹⁰⁴ Saunders and Walter (2011), p. 43–45.

had traditionally enjoyed intimate relationships with domestic corporates and governments.¹⁰⁵ Glass Stegall is also credited the impetus for the development of “global buy-side” markets, comprising insurance companies, pension funds, and other institutional investors, by U.S. investment banks that provided buy-side participants with new investment alternatives. It is validly assumed that had Glass Steagall not been in place after 1933, the lack of competitive pressure would have affected the global competitiveness and drive to innovate that U.S. investment banks subsequently showed, especially after the mid-1970s.

It is, therefore, unsurprising that the true impetus to amend and eventually repeal the Act did not come from the SEC regulated broker-dealer sector but rather it was the through pressure by large U.S. commercial banks¹⁰⁶ whose participation in global capital markets and especially in the lucrative securities underwriting market was restricted even after the 1956 amendments, which allowed commercial banks to maintain a limited purpose securities subsidiary. Commercial banks, which already competed “vigorously with investment banks in government bond, foreign exchange, and other traded markets as well as corporate advisories” argued that Glass Steagall restrictions on their securities activities placed them at a competitive disadvantage. Namely, the principal factor behind the disastrous repeal of Glass Steagall was greedy commercial bank shareholders rather than a nefarious Wall Street conspiracy.

¹⁰⁵ Ibid. Saunders and Walter accurately note: “By the early 1990s American investment banks basically dominated their industry worldwide, with a market share approaching 75% in terms of transactions volume. As a consequence, investment banking developed into one of the top U.S. export industries”. Id.

¹⁰⁶ Saunders and Walter name as the principal agitators Morgan Guaranty Trust Company, Bankers Trust, Chase Manhattan and Citicorp. Saunders and Walter (2011), pp. 45–47.

F Summary of Findings

The presence of significant economies of scale associated with bank size are not a sufficient reason to allow banks to expand their balance sheets, normally through leverage, to the point that they threaten financial stability. But even if there is a trade-off between efficiencies-driven bank size and financial stability, the studies discussed earlier showed no evidence of any efficiencies attained through conglomeration. On the contrary, as Glass Steagall's impact on the competitiveness of the U.S. investment banking sector and the examples of important financial services firms like Blackrock, Euroclear, and large hedge funds have shown, focus pays off in banking as in most other industries. In contrast, conglomeration, in the name of unproved income diversification, seems to bring intolerable costs. These include the diversification discount and over-stretching management and regulatory ability to the point that universal bank behemoths become a constant social and financial stability risk.

Moreover, all evidence points to the direction that systemic risk cannot be contained in large diversified banks. On the contrary a number of studies, e.g., Richardson, Smith, and Walter (2010)¹⁰⁷ conclude that “expansion to multiple functions – the LCFI (large, complex financial institution) model – produces greater systematic risk”.¹⁰⁸ Their conclusion echoes an extensive line of studies pointing to the same direction, including more recently De Jonghe (2010)¹⁰⁹ and

¹⁰⁷ M. Richardson, R.C. Smith and I. Walter, “Large Banks and the Volcker Rule” in V. Acharya et al. (eds.), *Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance* (Wiley, 2010), 181–212.

¹⁰⁸ Ibid.

¹⁰⁹ O. De Jonghe, “Back to the Basics in Banking? A Micro-Analysis of Banking System Stability”, 19 *Journal of Financial Intermediation* (2010) 387–417.

theoretical work by Wagner (2010).¹¹⁰ It follows that, in the absence, of any strong evidence in favour of conglomeration, structural reform is a good way to respond to interconnectedness in financial markets. This is an issue that I will further discuss in the next section.

IX Dealing with the TBTF Bank

A Special Resolution Regimes and Structural Reform

Implementation of special resolution schemes and structural reform rather than enhanced competition have been the main prongs of government and regulators' approach to resolving the TBTF problem. Special resolution regimes for financial institutions, in general, as is the case with the EU Bank Resolution Directive, or just for systemically important institutions, as is the case with the Dodd Frank OLA, target TBTF moral hazard from two very important routes.

First, by removing legal obstacles to resolution, by means of derogation from general company and insolvency law safeguards and procedures, and by minimizing the risk of contagion, special resolution regimes purportedly secure the orderly failure of a TBTF bank, without damaging confidence in the financial system or disrupting the provision of essential payment and other services by the failing institution. Secondly, through the use of bail-in clauses, special resolution regimes attempt to force TBTF bank funders (shareholders & creditors) to internalize the risk of failure of systemic banks,¹¹¹ namely, to curb the externalities caused by

¹¹⁰ W. Wagner, "Diversification at Financial Institutions and Systemic Crises", 19 *Journal of Financial Intermediation* 373–386 (2010).

¹¹¹ One of the Act's explicit aims, as stated in its preamble, is: "to protect the American taxpayer by ending bailouts". Thus, under section 204(a) (1) of the Dodd Frank Act creditors and shareholders bear all the losses of the financial company that has entered OLA.

risk-seeking banks. It is expected that such bail-in regimes will make bank shareholders and more importantly creditors better corporate monitors minimizing excessive risk seeking.¹¹²

Structural reform, on the other hand, has, in general, taken two forms. First, the Vickers model that seeks to both shelter (ring-fence) the commercial banking part of the group from risks arising in the investment banking part of the group and battle interconnectedness, due to limitations it imposes on the activities the ring-fenced bank can undertake.¹¹³ The commercial banking subsidiary will remain part of the group subject to strict corporate governance safeguards. The second model (the Volcker Rule) amounts to an outright restriction on licensed commercial bank groups to engage in proprietary trading and shadow banking activities, namely, the riskiest parts of investment banking business. Thus, the Volcker Rule (s. 619 of the Dodd Frank Act) includes a ban on “proprietary trading” and “investing” and “sponsoring” a “covered fund”, a term that extends to a variety of shadow banking vehicles and beyond. A banking entity “invests” in a “covered fund” if it acquires or retains any equity, partnership, or other ownership interest in a hedge fund or a private equity fund.

Both Volcker rule and Vickers separation models present some distinct advantages when it comes to battling interconnectedness. In addition, revised Basel capital and liquidity

¹¹² See T. F. Huertas, “The Case for Bail-ins”, chapter in A. Dombrot and P. Kenadjian, *The Bank Recovery and Resolution Directive* (Berlin, De Gruyter, e-book, 2013). For some scepticism as to the possible adverse effects of triggering the bail-in process E. Avgouleas and C. Goodhart, “A Critical Evaluation of Bails as Bank Recapitalisation Mechanisms”, CEPR, DP 10015/14, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2478647.

¹¹³ The best example is the UK’s new ring fencing regime based on the recommendation of the Vickers Report which were implemented by means of the Financial Services (Banking Reform) Act 2013, c. 33.

requirements are bound to add further resilience and insert a more long-term perspective in the funding sources of commercial banks.

Yet structural reform may not resolve, on its own, the TBTF conundrum. While structural separation of different forms of banking is essential for financial stability yet the optimum model is rather elusive. For example, both the Vickers and Volcker models of structural separation are characteristically discomforted by the most challenging part of banking: wholesale lending. Also the circumstances surrounding the already discussed repeal of Glass Steagall and the EU “level the playing field” legislation have shown how vulnerable is structural legislation to political economy risks. There is always the possibility that due to groupthink or regulatory capture, driven by industry self-interest, one day politicians will turn back the clock to recent structural reforms and conglomeration and financial stability risk will re-emerge.

Finally, fractional reserve banking works on trust and any important endogenous or exogenous shock is capable of triggering a panic, in the absence of fiscal backstops. To this effect a discussion of the advantages and disadvantages of the alternative full reserve banking and of the two best-known models of narrow/limited purpose banking, both proposed by prominent economists, is very apposite here.

⌘ Full Reserve Narrow/Limited Purpose Banking

Chamley, Kotlikoff, and Polemarhakis have argued that “[b]anks collapse for one reason – they are leveraged. Hence, limiting proprietary information, that is, providing much more disclosure and transparency, and eliminating leverage are the key to having a stable, well- functioning

financial system”.¹¹⁴ Thus Kotlikoff¹¹⁵ and Chamley¹¹⁶ have proposed a full reserve alternative.¹¹⁷ The essence of their proposal is that all limited liability financial intermediaries should be treated identically, regardless of organizational form. Namely, all commercial banks, investment banks, insurance companies, hedge funds, private equity funds, credit unions would have to operate as mutual fund holding companies that issue 100 percent equity- financed open- and closed-end mutual funds. Total lack of leverage would mean that different institutions and the financial system as whole would never fail. Shadow banking vehicles will be allowed to

¹¹⁴ C. Chamley, L. J. Kotlikoff, H. Polemarhakis, “Limited Purpose Banking – Moving from ‘Trust Me’ to ‘Show Me’ Banking”, mimeo May 2012, available at www.kotlikoff.net/content/limited-purpose-banking-moving-trust-me-show-me-banking.

¹¹⁵ L. J. Kotlikoff, *Jimmy Stewart Is Dead: Ending the World’s Ongoing Financial Plague with Limited Purpose Banking* (John Wiley and Sons, 2010).

¹¹⁶ See C. Chamley and L. J. Kotlikoff, “Limited Purpose Banking – Putting An End to Financial Crises”, *Financial Times*, The Economists’ Forum, 27 January 2009, available at <http://people.bu.edu/Kotlikoff/newweb/LimitedPurposeBanking1-27-09.pdf>.

¹¹⁷ Their proposal has been summarized as follows:

1. All financial companies protected by limited liability can market just one thing – mutual funds.
 2. Mutual funds are not allowed to borrow, explicitly or implicitly, and, thus, can never fail.
 3. Cash mutual funds, which are permitted to hold only cash, are used for the payment system.
 4. Cash mutual funds are the only mutual funds backed to the buck.
 5. Tontine-type mutual funds are used to allocate idiosyncratic risk.
 6. Pari-mutuel mutual funds are used to allocate aggregate risk via direct or derivate betting.
 7. The Federal Financial Authority (FFA) hires private companies working only for it to verify, appraise, rate, custody, and disclose, in real time, all securities held by mutual funds.
 8. Mutual funds buy and sell FFA-processed and disclosed securities at auction. This ensures that issuers of securities, be they households or firms, receive the highest price for their paper.
- Chamley et al. (2012).

carry leverage but as they would be unlimited liability entities, any losses would fall on their owners.

Full reserve limited purpose banking is not without its own intractable problems. For example, how would full reserve limited purpose banks defend themselves from a depositor flight when competing “shadow banks” offer reasonable and safely higher interest, while they are themselves constrained to do so by the fact that their reserves would be fully invested in low yielding instruments? Moreover, not all “shadow banks” will be the same. What if imprudent depositors start chasing illusionary high returns from Chinese type investment trusts, rendering unregulated retail shadow banks the order of the day. Of course, Kotlikoff et al. note that shadow banking entities will have to be unlimited liability vehicles. However, this, in effect, means very little. Will regulators be able to check if owners’ equity is enough to cover the shadow banks’ liabilities? If yes then the “shadow banks” are now “regulated banks” in some jurisdictions. Then how are we supposed to avoid – disastrous in this case – regulatory arbitrage by shadow banks in the absence of a global regulatory system and a global regulator, which may be politically unfeasible for some time?

Professor Kay has suggested a different form of full reserve narrow banking. This would involve the spinoff of big bank’s proprietary trading business, because this business differs only in scale from their treasury operations, which are both necessary and legitimate.¹¹⁸ As a result, Kay proposed a division between narrow banks accepting retail deposits, which should preferably be invested in risk-free government bonds and would only provide payment and other

¹¹⁸ J. Kay, “Narrow Banking, The Reform of Banking Regulation”, Report for the Centre for the Study of Financial Innovation, September 2009, available at www.johnkay.com/papers/JK_NarrowBanking.pdf.

utility banking services and all other financial business. The latter could be deregulated and freed from microprudential regulation.

Professor Kay's model also presented intractable difficulties. First, under the Kay model most forms of lending that could create an asset bubble such as mortgage or big business lending would be conducted by the unregulated or quasiregulated sector, perpetuating the risks that led to the global financial crisis, such as the too-big-to-fail problem.¹¹⁹ Also, leaving risky lending to the unregulated sector would mean that unequipped financing vehicles would have to assume risks that commercial banks are much better equipped to handle.

Another loophole of Kay's model is the constantly fluctuating state of sovereign bond markets. As the Asian and Eurozone crises have shown, these assets are as unsafe as any. In addition, there may be inadequate supply of such instruments to cover the entire stock of insured deposits in any given country, as is the case with the United Kingdom.¹²⁰

Arguably, there is no way around either problem, and Kay's suggestion for the government to issue additional gilts to on-lend to narrow banks "would essentially mean the nationalization" of credit risk. Finally, Kay's model is even more vulnerable to unlicensed competitors (e.g., money market funds) offering higher interest rates to existing and potential depositors as the suggested narrow banks' assets would attract the traditionally lower sovereign bond yields rather than the superior corporate bond interest rates.

¹¹⁹ Kay suggested that funds for these activities would be raised from wholesale markets, securitisations and own capital, instead of retail deposits. Ibid.

¹²⁰ Financial Services Authority (FSA), "A Regulatory Response to the Global Banking Crisis: Systemically Important Banks and Assessing the Cumulative Impact", Discussion Paper 09/4, October 2009, pp. 23–24.

Yet, what is discussed earlier does not mean that the introduction of narrow banking vehicles, which combine both equity and debt financing through the capital markets, in parts of the financial system, would be out of place. On the contrary, especially when it comes to credit markets like mortgage lending, where leverage has a massive impact on the real economy, and a feedback effect on financial stability, due to the volatility of housing markets, if their rates were competitive, such narrow banking vehicles would remove a very substantial source of instability from the financial system.

IX. Conclusion

Saunders and Walter have observed that in a pure market context, optimum institutional structure in the financial sector should be driven by the production functions of financial intermediaries and the preferences of end users.^[121] In practice financial institutions become larger or smaller, broader or narrower than what is optimal for the intermediation tasks to be performed. This is mostly due to distortions in markets for financial intermediation in the form of taxes, explicit or implicit subsidies, and regulatory constraints.^[122] Two prominent such distortions are the TBTF subsidy and the preferential tax treatment of debt that affects the structure of bank capital.^[123] Lots of questions had been left unaddressed for a long time. Is bigger better? Is broader better? Both

^[121] Saunders and Walter (2011), p. 48.

^[122] Ibid.

^[123] A. R. Admati, P.M. DeMarzo, M.F. Hellwig and P.C. Peiderer, “Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is Not Expensive”, Rock Center for Corporate Governance at Stanford University, Working Paper No. 86/2010.

questions have no easy answers. We need to consider them in the context of financial stability, client welfare, shareholder value, regulatory effectiveness, and oversocial utility.

Issues of financial stability and consumer welfare ought to be addressed first. As explained earlier there are strong arguments against excessive competition in the banking sector, as margins could be eroded leading to reckless risk taking. As regards consumer welfare, a good example is the TBTF subsidy. This amounts to abuse of stronger competitive position. So in theory there ought to be welfare losses emanating from the discussed funding cost squeeze on competition. While these are still to be measured,¹²⁴ it may also be the case that the TBTF subsidy translates into gains for consumers, as banks pass on their funding advantage to their customers, primarily in the shape of lower interest rates. In addition, the subsidy makes TBTF banks more attractive to capital market investors and thus easier to raise fresh capital.¹²⁵ Therefore, whether bigger and broader is better in banking has no easy answers, notwithstanding the all-pervasive issue of moral hazard and the ever present threat of shifting the burden of imprudent bank management to the taxpayers via expensive bailouts.¹²⁶

TBTF banks were rightly castigated as the main culprits of the GFC and attempts to put an end to them and thus to public bailouts are properly guided from a public-interest perspective.

¹²⁴ For example, it is argued that it should be measured in terms of losses of potential competition. See H. Liu, P. Molyneux, J. O. S. Wilson, “Competition and Stability in European Banking: A Regional Analysis”, Working Paper, September 2010, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1670744.

¹²⁵ Both points are intellectual loans from a previous paper I authored jointly with Charles Goodhart and he deserves most of the credit for raising them.

¹²⁶ Saunders and Walter (2011).

Moreover, the preservation of fractional reserve banking faces colossal challenges beyond the possibility of a run. The quest for optimal bank organization and ending the TBTF problem may not be separated from the fact that such banks operate on the basis of a fractional reserve system that may require fiscal backstops to eliminate the possibility of multiple runs.¹²⁷ By offering a clear model of limited purpose banking, Kotlikoff, Kay and others have highlighted leverage as the problem. However, as explained already, full reserve limited purpose/narrow banking model is fraught with intractable problems itself. These refer to the economics and mechanics of credit supply being very vulnerable to both predatory and bona fide competitors offering better rates. Accordingly, it is the duty of epistemic and regulatory communities to identify one or a number of optimal structural models, which ought to also target the boundary problem¹²⁸ and foster long-term growth.¹²⁹ Higher capital requirements and especially leverage controls have lots of potential to make banks more stable and the establishment of tailor-made resolution regimes amounts to a significant step to avert the panic that followed the collapse of Lehman Brothers.

Nonetheless, assumptions about the power of post-2008 resolution regimes to internalize the cost of bank failures, eliminating TBTF moral hazard and attendant competitive distortions,

¹²⁷ See also D. Schoenmaker, “A Fiscal Backstop to the Banking System”, Duisenberg School of Finance Mimeo, June 2014.

¹²⁸ An excellent exposition of the border problem is offered in C. Goodhart, “How Should We Regulate the Financial Sector?”, in A. Turner et al., *The Future of Finance and the Theory that Underpins It* (LSE, 2010), chapter 5, pp. 176–179.

¹²⁹ E Avgouleas, “The Reform of ‘Too-big-To-Fail’ Bank – A New Regulatory Model for the Institutional Separation of ‘Casino’ from ‘Utility Banking’”, University of Manchester Working Paper, February 2010, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1552970.

contain a considerable amount of wishful thinking, until proven otherwise. Especially in the context of big international bank resolution, limited fiscal backstops will remain, under different guises.¹³⁰ Perhaps this limited fiscal prop on ring-fenced or segregated banks is the cost that society is asked to pay for the benefit of fractional reserve banking. And this will probably remain the case until another organizational form emerged, which would replace fractional reserve banks as providers of liquidity (virtually) on demand and would answer, at the same time, most of the questions raised so far regarding financial stability, competition, and consumer welfare. Hopefully, any such model would bring within the regulatory umbrella, even in part, shadow-banking activities and would accentuate the importance of long-term growth finance for financial stability.

¹³⁰ Avgouleas and Goodhart, *supra* note 112.